MERCHANDISING SUPPLEMENT
Electricity on the Farm

Vol. 3 NOVEMBER, 1930 No. 11

The Electric Range Gains

While some power companies have labored under the impression that the farm field is not a particularly fruitful one for the sale of electric ranges, the experience of one western power company, boasting over 8,000 connected farms, would seem to indicate that the farm field is more promising than the city field for electric range business. This particular company has a total of 5,222 ranges in service on its lines, representing a 52% saturation of their farm customers; this compares with 46% saturation for the city users of electric current of that company. These figures are still more conspicuous when it is pointed out that approximately 45% of the customers of this company are located on farms. Of still greater encouragement is the enthusiastic endorsement by farm housewives, in the territory served by this company, of electric cooking.

With some power companies showing only 5% saturation in electric cooking in their farm field, with an average of less then 20% for all companies serving rural sections, there is almost a virgin field still available for the sale of ranges, to say nothing of the load they will represent when they are connected up.

Wiring the Farmstead

By J. P. SCHAENZER

Project Leader, Wisconsin Committee on the Application of Electricity to Agriculture

THOUSANDS of farmers are having their farmsteads wired annually. Whether or not this job is well done, adequate, safe, convenient and of ample load carrying capacity for the future, rests for the greater part upon the farm owner. It is necessary that the person contemplating the use of electricity be well informed on the details of a satisfactory wiring system which is adequate for his needs and purposes.

Experience has proven that a large number of farms are inadequately wired and in order to make them meet the requirements of present uses, a large unnecessary expense is incurred. This extra outlay of money and inconvenience can be prevented by knowing in advance the uses to be made of electricity on the farm and thus determine the location and size of the transformer and the size of entrance switch and wire to be installed. To what extent and uses electricity can be put on the farm depends entirely upon the wiring system. This may be looked upon as being the foundation which determines to what extent electricity may serve the owner. Just the same as the foundation of a building controls the size and height of the building, so the wiring system regulates the size and number of pieces of equipment that may be operated electrically at one time.

Adequate Wiring Pays

A complete and adequate wiring system will permit the user to secure light, power and heat where it will be most useful and handy. It will enable him to use it to the fullest extent in lighting his buildings and do the innumerable household tasks and farm chores such as pumping water, cooking the meals, washing and ironing clothes, grinding feed, milking the cows, separating the milk, cooling the milk or cream, filling the silo, sawing wood, hoisting hay and ventilating the barn.

According to Wisconsin Circular 163, "Turn on the Light," forty-six farmers estimated that good lights save them an average of one hour per man each day in doing

Fig. 1. Electric high line serving the University of Wisconsin East Hill Farm.

chores. Furthermore, a test was conducted on one of the Wisconsin University farms in which a man did chores one night by the aid of a lantern and the next night by electric lights. The time required to do the chores when the lantern was used was 84.5 minutes as compared with 55 minutes with electric lights. This is a 35 per cent saving in time. It is possible to increase the dairy herd about one hundred per cent with no increase in the milking time when electrically operated milking machine is used as compared to hand milking. These few examples illustrate the saving in time and labor that may be accomplished by the use of electrically operated appliances. It may further be seen that the working capacity and income per worker is increased considerably. With the output per man being increased it will enable him to either increase his farming operations, get along with less help, or increase his time for recreation and leisure.

Progress is being made in industry, equipment of larger capacity is being built and the output per worker is increased from day to day. Similar progress has to be made in agriculture if it is to endure. Electricity can be one of the vital factors to assist in increasing the profits in farming and to make the farm a more pleasant place to live.

A Good Investment

A good wiring system should be looked upon as a good investment and a permanent improvement. If properly done it should last as long as the average building without any changes or additional expense, and give satisfactory service during that entire period.

When a farm which is adequately wired is offered for sale, it should bring a better price as well as attract more buyers. When such a farm is to be rented it should mean a more desirable renter due to the greater number of prospective renters and an increased income as rent.

In order to assist farmers in securing a wiring system adapted to their needs, some of the major points of such a system will be discussed.

Location of Transformer

Experience has shown that the transformer which is furnished by the utility should be hung as close to the center of the building group as possible, or near the center of the farm power load. This is especially important where the farmer expects to make use of as high as five and seven and one-half horsepower electric motors. If the distance from the transformer to the motor is too great and the wire too small, a drop in voltage results which may be so serious as to handicap the proper operation of the equipment. Exceedingly large wires are also necessary for the greater distance which adds materially to the expense of the installation which must be borne by the customer.

In one case grinding feed with a hammer type feed mill and a

Fig. 4. A weather proof box located on the side of a building protects the 100 ampere entrance switch and meter from the weather. Wires going to and from the entrance switch are in conduit.

five horsepower electric motor was impractical due to low voltage. The resultant lack of capacity and unsatisfactory coarse product made the operation rather expensive. On another farm it was impossible to cut ensilage and elevate it into a twenty-two foot silo due to the distance of the motor from the transformer and small size of wire used. It was oftentimes necessary to stop the ensilage cutter in the middle of a bundle and recover the speed.

What Size Transformer?

What size transformer do I need? This is perhaps the next question that enters the mind of the prospective customer. This depends upon the amount of equipment that you expect to operate at one time. Transformers come in sizes of 1.5, 3 and 5 kva and larger, which is the approximate equal of that same number of horsepower or may also be respectively represented as 1,500, 3,000 and 5,000 watts. The equipment operated at any one time should not materially exceed in watts or horsepower the rated capacity of the transformer.

The electrical equipment used on a farm, known as the "connected load," but not all operated *at one time*, may exceed many times the rated capacity of the transformer. This is due to the fact that the equipment and appliances are operated at various and irregular intervals. The Committee on the Relation of Electricity to Agriculture in Volume IV, No. 1, reports that in Iowa a 1.5 kva transformer has been carrying a connected load of from eight to ten times the rated size. The customer may well afford to assist in this matter because in many cases the monthly service charge is based on the size of transformer and naturally the larger the transformer the greater the monthly bill for the consumer.

Three wires known as entrance or service wires come from the transformer and connect to the entrance service switch and meter. These should be of ample size, at least No. 6, so that they will not handicap the system in the amount of electric current available. Three

Fig. 2. The transformer on one pole and entrance switch and meter in a weather proof box on another, are centrally located among the buildings.

wires are necessary in order that both 110 and 220 volt current may be had. Motors of one-half horsepower and larger should be connected to a 220 volt circuit to secure the best results.

The Entrance Switch

In determining the size of entrance switch, which is furnished and paid for by the customer, due consideration should be given the possibilities of future uses for electric current. A 100 ampere, 125/250 volt entrance switch is recommended for the average farm. This size is required, if satisfactory service is expected, when it is necessary to operate such pieces of equipment as a range, five horsepower motor and smaller appliances at the same time. An entrance switch smaller than 60 amperes, 125/250 volts should *never* be installed on a farm. If this size switch is installed, and some of the larger pieces of equipment are used, it may oftentimes be necessary to alternate the operation of the equipment in order that the entrance switch can furnish an adequate amount of current for satisfactory operation. An entrance switch that will meet the future requirements of the farmer should be installed as an extra expense

Wire Sizes For 220 Volt, Single Phase, 60 Cycle Repulsion-Induction Motors

Size of Single Phase Motors	Distance from the transformer to the motor			
	Not over 100'	100' to 200'	200' to 300'	300' to 400'
2 H.P.	8	8	8	6
3 H.P.	8	8	8	6
5 H.P.	5	5	5	4
7½ H.P.	4	4	4	2

NOTE: Wire one size larger or smaller might be used, depending on the starting torque and R.P.M. of the motor. With motors or less than 700 R.P.M. the wire should be one size larger.

is incurred if it becomes necessary at a later date to change to a larger one.

The entrance switch may be located in one of various places. This depends somewhat upon the center of the farm load, the preference of the owner, and the rules of the utility. Entrance switches are found in such places as porches, side of buildings, hallways, basements, outbuildings and on a separate pole with the meter. This pole is usually about ten or fifteen feet from the transformer pole. The meter and entrance switch are placed in a weatherproof box within easy reach of an adult. A door is placed on the box so that the entrance switch and meter are easily accessible. This arrangement permits the reading of the meter at any time without disturbing the family and whether or not they are at home. This type of installation is considered ideal in most cases as it is permanent, satisfactory, practical, handy and in a central position to render the best service.

The three entrance wires coming from the top of the pole to the entrance switch should be brought together into an inverted weather proof fitting or service head and then conducted to the switch in one and one-quarter inch metallic conduit. After going through the switch the wires return to the top of the pole using the same method of installation. It is considered good practice to ground the neutral wire, safety switch and conduit.

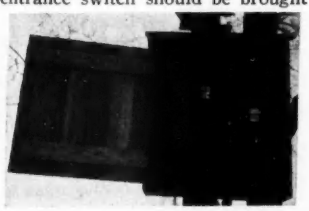


Fig. 3. The 100 ampere entrance switch and meter in a weather proof box on a pole enables the meter reader to read the meter regularly without disturbing the family.

Wire Size and Load

Wire known as "weatherproof wire" should be used for all outside construction, and rubber covered insulated for indoor work. All outside wire should be put up at least eighteen feet so as not to interfere when hauling in crops. The capacity of equipment and the speed of motors will be decreased when wires of too small a size are used. The line from the transformer to the service switch, meter and on to the motor should be built according to the specifications given in the table as to wire sizes depending upon the distance and the size of motor to be used.

Where wires enter a building, it is the best practice to use rigid conduit with a service head.

None but competent, established contractors with a good reputation should be hired to do farm wiring. The power company is usually in a position to assist in selecting or recommending wiring contractors to prospective customers. Only approved materials should be used and all installations should come up to the standards and specifications prescribed by the utility. It is a good policy to have the wiring inspected and approved by the power company before the contractor is paid in full.

RURAL ELECTRIFICATION Salesmen's Forum

Keeping Ice Out of the Poultry Fountain

AN adequate supply of water is one of the most essential factors in proper handling of poultry. As in plants and other animals, water is the transportation system, and consequently must be available to the birds when needed. The chicken uses a large amount of water in the manufacture of its two major products, eggs and meat. The first including shell is about 65 per cent and the latter about 55 percent of water.

In view of the importance of having an adequate water supply before the poultry, it is deemed necessary to have this supply available at all times. No experiments have been performed which show conclusively that warm water is necessary but experience has shown that withholding water supply from a flock of poultry will be reflected in production in a very short time.

Kerosene Heaters First Used

One of the problems encountered by poultrymen in providing a constant supply of water is that of freezing. In many poultry raising sections of the United States, freezing temperatures prevail during several months of the year. These freezing temperatures mean that drinking fountains unless provided with artificial heat from some source become frozen over and the fowls are unable to drink until the ice is broken or thawed out. This item has become more important with the adoption of electric lights for stimulating winter egg production since the fowls frequently wish to drink several hours before the poultryman visits the house, where their day is started at 4 A. M. or thereabouts. Prior to the advent of the use of artificial illumination, it was common practice to carry a bucket of warm water to the poultry house after the poultryman arose, expecting the warm water to retain sufficient heat to withstand freezing throughout the day.

Even today in many poultry houses during freezing weather, fowls receive no water after their owner has arisen, taken care of his other animals and completed his morning chores. This man fails to realize the importance of providing the water so that the birds may have access to it whenever they need it.

A Winter Problem

The problem of freezing over the top of the fountain resulted in poultry equipment manufacturers attempting to devise and manufacture heaters for preventing the water from becoming covered with a layer of ice. Kerosene heaters were probably the first made for this use. However, the danger from fire, combined with the extension of farm electric lines resulted in the manufacture of several electric heaters. Professor George W. Kable, while at Oregon Agricultural College probably did more than any other individual to call the attention of manufacturers to the need for such heaters in his studies conducted at Corvallis which were reported in Station Circular 81 published in May, 1927, by the Oregon Agricultural College, Experiment Station. Professor Kable not only showed the need for such heaters but did much toward pointing out the type of heater which best suited this task. He also made recommendations on suitable wattages for the temperature conditions which prevailed in that section of the country.

The latter item in the foregoing

paragraph is very important for the wattage of the heater should be ample to prevent freezing under the most severe conditions and at the same time not produce water at too hot a temperature. This item is of vital importance to the poultryman since the higher the wattage the greater his current consumption and consequent higher bill for electric energy.

Types of Heaters

Electric heaters available for heating poultry drinking fountains can be divided roughly into two types, the immersion and the externally applied type. There are several types of immersion heaters most of which are shown in Professor Kable's bulletins. Of this type the most practical unit is undoubtedly represented by the "Acme" heater. This consists essentially of a small copper tube about one-half inch in diameter in which a heating unit is located near the bottom, or in that section of the heater which rests on the bottom of the drinking vessel. At the top of the copper section is a round knob which is designed for use as a handle. Ordinary heavy lamp cord is used to connect the heater to a source of electric current. Since the publication of Professor Kable's bulletin at least four similarly designed immersion heaters have been designed and manufactured although not all of them are on the market at the present time. While essentially the same, one make of heater is designed so as to have the entire heating unit rest on the bottom of the vessel. This matter may be an important one in the event that all of the water is drunk from the pail or fountain and the supply not immediately replenished, for it is possible that under such conditions the heaters might "burn out" if left in the air with no water to dissipate the heat.

Another very important item pertaining not only to the immersion type of heater but the external type as well, is the necessity for the use of rubber-covered, water-proof cord. Water may be spilled on the cord or the cord itself may fall into the drinking vessel with a resulting short in the supply circuit. Fowls will have less tendency also to peck at the rubber-covered cord than that encased in cloth.

The second type of heater is that externally applied to the pail or fountain. There are many shapes and sizes of such heaters. Ring or strip heaters may be fastened to a bucket or fountain on the under side, lamps may be placed under or around the bottom of the drinking vessel and the container may be set upon heaters such as fountain warmers. Of all the heaters of this type, the fountain warmer equipped with three heats appears to be the most practical. An item on this matter may be found in the report of the director of the Purdue University Agricultural Experiment Station for the year ending June 30, 1928, in which it is stated that "Observations on electric water heaters for poultry indicated that heaters with a range of heating capacity are more economical than those with only one heat." Experimental work on electric poultry water heaters has been conducted during the winters of 1927-28, 1928-29, and 1929-30, and results of these tests will be published shortly in bulletin form. One indication of the opinion of the head of the poultry department at Purdue University on electric water heaters is reflected in a recent purchase, by his department for use on the university flock, of approximately 70 three-heat fountain warmers to replace a like number of carbon lamps which had been used previously for heating the buckets from which the fowls drink.

Wattage Size Important

As previously stated the wattage of the heater is very important. Professor Kable stated that "heaters of 75 to 100 watts capacity are about right for warming two gallons of water." Where three-heat wattage might well be above this amount and the low wattage below. A very important item to be considered in this respect, however, is the matter of voltage drop for the wattage of the heater drops not directly as

the voltage drop but as the square of the voltage. Thus any recommendation to be made on the wattage of heaters should be made after an inspection of voltage conditions on the presmises.

The wattage of the heater will depend to a considerable extent upon the amount of water which it is required to heat. The shape of the fountain itself may have some bearing on the matter of the proner wattage. A newly designed drinking fountain is rectangular in shape being much longer than its width, with depth slightly less than the width. This fountain is mounted on legs and equipped with a three-heat electric heater. It is possible that the wattage for a heater on a fountain of this rectangular shape might be different from that required for a round fountain which would contain the same amount of water, because of a difference in heat loss through the sides of the container.

In selecting the fountain and heater for a prospective purchaser, it is well to consider the number of birds which are usually kept and the size of fountain required. On the Purdue University farm where 14-quart buckets are used almost entirely for drinking fountains, one bucket is provided for each 50 birds. Circular or rectangular drinking fountains will have capacity for certain numbers of fowls depending upon the dimensions of the fountains.

Selling Poultry Heaters

In many cases where the farmer or poultryman is interested in electric water heaters, he already may have electric service in his poultry houses for lighting the birds. In a case of this kind it may aid in selling the heaters if the salesman points out the ease with which a separate circuit for controlling the heaters may be installed.

This is simplest where a two-wire lighting circuit is controlled by a single pole switch leaving the second wire hot at all times. The addition of a third wire to this pair makes possible the separate water heater circuit controlled by a single pole switch in the third wire.

At first glance the power company salesman or local dealer may be inclined to pass up the electric water heater as not worthy of his attention but in either case while the heater may not mean more than a $3 sale, it is very worthy of consideration.

The power company representative primarily interested in building kilowatt hour consumption may increase the annual consumption of the farm customer more through the sale of one such heater than he would through use of a motor to operate an ensilage cutter to fill a silo. For one 50-watt heater used for three months during the winter might use 108 kilowatt hours which is more than is required to fill many silos. An illustration of this came to the writer's attention in the spring of 1929 during a visit to a small poultry farm in Eastern Indiana. During the preceding winter the farmer had purchased seven fountain warmers for the prevention of freezing in his poultry drinking fountains. During one month his bill for current exceeded $50, where his average bill had been $4 to $5, and he was satisfied with the bill. A later reduction from his 12 cents per kilowatt hour rate through the purchase of a range has made him a life-long friend of the power company. Of vital interest also to the power company representative is the fact that under ordinary conditions additional transformer capacity is not required for the water heaters as might be the case with the motor to drive the ensilage cutter which would mean an improvement in load factor on that particular farm.

The sale of a water heater should also be of interest to the local dealer whether he be in the hardware business or in the hatchery business carrying a supply of poultry equipment or a local electrical contractor who sells farm electrical equipment. In the case of any one of the three mentioned, the sale of the water heater opens the possibility of future sales of additional water heaters as well as hardware, poultry equipment, or electrical equipment.

Rural Survey Brings Out Some Interesting Facts

Indianapolis Power & Light Company Makes Survey as Initial Step to Build Rural Load

By WM. N. BRANSON

THE Commercial Department of our company recently decided upon a survey of rural service in order to promote an increased use of electricity in the rural areas covered by its lines. It was decided first to find the present conditions, particularly on farms where service was already connected. With this in view, a complete record was made of 776 rural customers—which comprises approximately 85% of the actual farm customers served by the company. Some interesting information which was gained as a result of this survey, will be of great value in planning any type of sales effort with this group. Here are the results:

Wm. N. Branson

General farms.....	529	68.2%
Truck farms.....	136	17.5%
Dairy farms.....	54	7 %
Stock farms.....	18	2.3%
Florist farms.....	18	2.3%
Poultry farms.....	11	1.4%
Nursery farms.....	8	1 %
Fox farms.....	2	0.3%

On these 776 farms, we found the following equipment in use:

Type	No. in Use	Percentage Saturation
Handirons	596	77 %
Washing machines.	543	70 %
Water pumps.....	393	50.7%
Sweepers	386	49.8%
Radios	192	24.8%
Refrigerators	44	5.7%
Misc. motors.....	41	5.3%
Milking machines..	33	4.3%
Ranges	27	3.5%
Vegetable washers.	22	2.8%
Separators	19	2.4%
Sewing machines...	16	2 %
Feed grinders.....	10	1.3%
Stokers	9	1.2%
Brooders	8	1 %
Ventilating fans...	6	0.8%
Incubators	5	0.6%
Corn shellers.....	4	0.5%
Ironers	3	0.4%
Sprayers	1	0.1%

While making this survey no effort was made to develop any sales prospects. However, sufficient interest was created that requests were made for information which should lead to the installation of the following:

25 water pumps
6 washing machines
5 refrigerators
3 ranges
3 separators
3 feed grinders
2 milking machines.

A glance at the above saturation figures, demonstrates the fact that the market for practically all of the standard electrical appliances has hardly been scratched with this group of customers.

It is surprising to find:

That nearly 97% are still using coal or gasoline ranges;
That 94% probably have no means of refrigeration;
That 75% are not taking advantage of the wonderful entertainment offered by radio;
That 50% are still using the old hand pump;
That 50% apparently are still operating the unsanitary and unsatisfactory old fashioned broom.

With these figures, the next step was to find out how many kilowatt hours were being used by the various classes of rural customers. The month of April, 1930, was taken as

Class	Number	KWH Consumed	Average KWH Per Farm	
General farms	529	18,042	34.1	
Truck farms	136	10,250	75.3	
Dairy farms	54	3,896	72.1	
Stock farms	18	1,984	110.2	
Florist farms	18	3,361	186.7	
Poultry farms	11	2,974	270.3	
Nursery farms	8	1,086	135.7	
Fox farms	2	372	186	
	776	41,965	54	Average

an average and gave us the information shown in table above.

In spite of the larger amount of work to be done on any farm, the above figures show that the average general farm uses considerably less electric service than the average city user.

Wide Range of Subjects

The problem is to find out why our rural customers are not taking advantage of this efficient electric servant which is already in their homes. In an effort to inform them regarding a more complete use of our service, we have arranged to send them the magazine, ELECTRICITY ON THE FARM, with the hope that their electrical conditions in time will be materially bettered to their own advantage and to the advantage of our company in the use of a greater number of KWH per month.

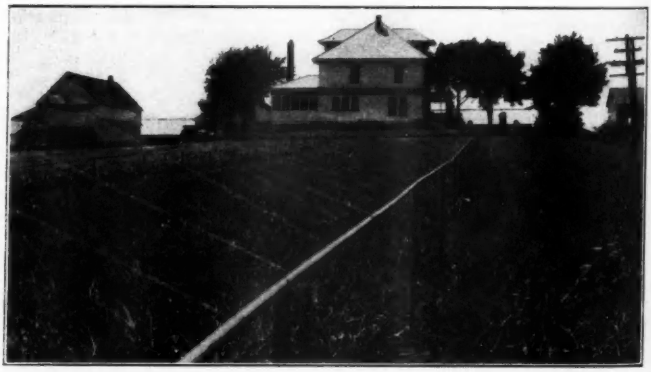
"Black Bottom" Ivory Enameled Wear for Electric Stoves

The Geuder, Paeschke & Frey Co. of Milwaukee has introduced a new line of enameled ware designed to increase the cooking efficiency of electric stoves.

Cream City "Black Bottom" enameled ware, as it is called, is characterized by a flat bottom, finished in a dark enamel . . . flat to insure close contact with the heating elements, and black to absorb more heat.

This new feature enables the user of an electric stove to cook food in much less time, and it has been found a saver of fuel for the other types of stoves.

The sides of each utensil are finished in six coats of enamel (three outside and three inside). This heavy body retains the heat after it is absorbed. The water-seal rim and cover aids in holding in steam and keeps water boiling with a very small flame or heat. This line is furnished in diameters of 7½ and 8 inches, to fit any size of electric stove, and in various heights.



Irrigating onions which form a part of the truck farm of Charles Brehok, south of Indianapolis, Ind. The Brehok home is in the background.

Electric Water Warmers

By J. C. SCOTT

THE Jesse Brown herd of Jersey cows at Woodinville, Washington, which began to fall off in milk production during the cold weather was brought back to their normal milk flow by the uses of especially designed large electric insert water heaters used in the watering trough.

The Midget Heater & Specialty Company, of Tacoma, Washington, made a three-heat insert heater of about 750, 1500 and 2500 watts. The heater, 10 feet in length, was installed in a concrete tank 11 feet by 2 feet six inches by 10 inches deep, inside measurements. It was left turned on all night through the cold weather when the thermometer reached 4 degrees below zero in this particular territory. The temperature of the water during this time was held at about 64 degrees.

Mr. Brown's observations were that the downward trend in milk production was checked within a day or two, and brought back to normal within four days.

"Many people," says Mr. Brown, "claim that a cow cannot be brought back to normal milk flow when she starts down in the winter time, and this is true if the cow is permitted to stay down for ten days or two weeks. However, we brought our herd back because they were off only for a few days.

"I noticed that when the cows were turned loose in the morning they drank more water when it was warmed, their hair did not stand out on end, as it did when they drank cold water, and they did not stand around shivering after filling up on the water.

"There is no question but that there is quite a saving in feed by warming the water.

"Since the weather has returned to normal, cows have the preference of the creek or the warmed water in the trough. They go out and wade around in the creek, but when they want a drink they go to the trough. The water in the creek is 42 degrees and the water in the trough is kept at from 60 to 70 degrees Fahrenheit.

Experience has proven that warmed water is a great financial benefit to the dairyman and also that the electric warmers can be made practical and economical for this purpose. It will always be advisable, however, that all watering troughs warmed by this method should be insulated, that is, a wooden frame or box should be constructed around them with at least 5 or 6 inches of sawdust or similar material, kept absolutely dry, around the bottom and sides of the trough.

Also, during cold weather it will be well to put a cover over the trough, in order to prevent a large amount of heat being lost. If this practice is followed, a 6, 8 or 10 feet insert heater of 500 to 1,000 watts would be ample for a large herd of dairy cows. A low wattage heater of 500 or 1,000 watts, left on 24 hours of the day, keeping the water and the inside of the trough well warmed, should be very much more economical and practical than a larger wattage heater turned on a few hours a day. It is easier to keep the trough warm than to allow it to get cold and heat it occasionally after ice has been allowed to form.

Preferred Warm Water

Mr. Joe Guntar, of Auburn, Washington, kept the water warm for his herd of 31 cows with a two kilowatt insert heater, specially constructed by the Wesix Electric Company, Seattle. When the temperature of the air was 18 degrees F. above zero, the temperature of the water in Mr. Guntar's watering trough was 58 degrees above. Two watering troughs were used in this experiment, one warmed and the other not warmed. The cows preferred the warmed water, the temperature of which ran from 58 to 70 degrees.

According to Mr. Guntar the cows drank one-third more water when warmed than when not warmed. There was some saving in feed. The 31 cows gave one can more of milk per day on account of warmed water. There was no decrease in the milk flow during the coldest weather.

Wisconsin Annual Short Course. Well Attended

The sessions of the third annual rural electrification short course held at the University of Wisconsin October 16, 17 and 18, were well attended and numerous topics of interest to those in this field were presented and discussed.

Wide Range of Subjects

The following is a partial list of the subjects discussed: "The Average Monthly K. W. Farm Load," presented by A. F. Tegan of The Milwaukee Electric Railway & Light Co.; Prof. Stella T. Patton of the University of Wisconsin discussed "Essential and Comparisons of Farm Ranges"; M. L. Gehl of Gehl Bros. Mfg. Co. presented a motion picture film showing the Gehl silo filler in action; 'Dairy Water Heating" by C. C. Bell of Wisconsin Valley Electric Co.; "Experiences with Electric Brooders in 1930," by T. E. Hienton; "Mechanical Dairy Barn Ventilation," by J. L. Strahan, Louden Machinery Co., Fairfield, Ia.; and "Effective Methods of Reaching the Rural Customer," discussed by E. R. Meacham of the Wisconsin Power & Light Co.

Stover Issues a Special Electric Bulletin

Farm users of electric power will be interested in a new bulletin just issued by the Stover Mfg. & Engine Company of Freeport, Illinois, entirely devoted to its line of farm implements adapted for electric operation.

This well illustrated bulletin contains data on electric operated hammer mills, feed mills, corn shellers, pump jacks, burr grinders, etc. It is written in a clear and simple fashion, yet plenty of data is given regarding each implement.

Those handling electrical equipment for the farm trade will find it a useful handbook.

Nebraska Power Company Makes Appointment

Roy Page, vice-president and general manager of the Nebraska Power Company, recently announced that W. C. Edmiston, who has been with the Nebraska Power Company for three and one-half years, will have general supervision of all of the company's operations outside of Omaha and Council Bluffs, including farm service and merchandising.

Mr. Edmiston will continue as manager of the Ralston division of this company and of the Glenwood division of the Citizens Power and Light Company.

Mr. Edmiston began with this organization when the Omaha-Lincoln Railway and Light Company was purchased by the Nebraska Power Company.

Those in attendance at the Annual Short Course at University of Wisconsin.

Bob's Page

Devoted to Merchandising of Electrical Equipment in Rural Communities

Conducted by Robt. J. Fulton

Selling Electrical Appliances

WHEN new lines of equipment appear on the market the merchant is liable to overlook their possibilities. It may be due to the fact that he has been "stung" with some early crude models and therefore hesitates to take them up again. Or it may be that the business creeps into being so quietly that he does not sense its importance until, as is frequently the case, it is in the hands of some other agency.

You can remember the experience with tractors in the early days when the very large tractors did not fill the bill, causing many dealers to quit the line. Later on the smaller types came in on a cash basis and it was debated, for a time, whether or not the implement dealer or the garage man was going to be the distributor.

Grasp Each Opportunity

At the present time in many localities there is a merchandising opportunity that is liable to slip away from the implement and hardware dealers if they are not up on their toes. I refer to the sale of electrical equipment. With the rapid extension of power lines, and the many types of electrical equipment and appliances for individual use, there is an ever-growing opportunity for the live merchant to sell this kind of merchandise. It may be contended that the times do not warrant the purchase of such equipment. However, it has been demonstrated that people will buy the things that make for home comfort and easier living with less sales resistance than the ordinary types of farm equipment.

Your locality already has many miles of "high lines" and thousands of individually owned farm lighting plants are in use and being sold. For this reason the field for the sale of the various types of equipment and appliances is here, and it is rapidly developing, more every day. The implement and hardware dealers should not make the mistake of being asleep, thereby allowing this business to go elsewhere.

Sell the Farmer

You are the logical one to sell the farmer his electrical equipment. He is already your customer. He stops in at your store every time he is in town, and considers it a place where he and his family can meet after their business has been completed. Again, as you are soliciting him for other lines, why not add electrical equipment to the list? Do not say that it is too mysterious and that you cannot understand it. You must have someone around who is mechanically inclined or you could not put the other farm equipment together as you do.

If a merchant wants to be a leader in community development and preservation, he must be alive at all times to the new developments and opportunities that are opening for him. During this year more than 70,000 farms have gotten electricity for the first time.

After the farmer gets his lights the next thing he is interested in is water. If you can't sell him an automatic water system then sell him an electrical pump jack. The hammer mill, which enables him to see the actual saving enjoyed by having his own mill electrically driven, is the next piece of equipment he is interested in. With the profits received from this latter installation he is able to purchase an electric range and other appli-

ances which tend to make tasks in the farm home easier.

Plan with the farmer beforehand in order that he has sufficient wiring installed to take care of his needs later on. He will, in time, thank you for your assistance.

Before it is too late, that is, before someone else has secured the business, get into this field properly. See that your store is a place where up-to-date equipment can be bought. Do not be the cobweb storekeeper who is still trying to sell buggies and whips as his big line.

Better be safe than sorry.

Northeastern Section A. S. A. E. Meeting

The Northeastern Section of the American Society of Agricultural Engineers held their annual meeting at Rochester Oct. 16-17-18. The program had a strong electrical flavor, probably due to the fact that so many power company rural service men are such active members in this particular section.

Among the papers presented which were of particular interest to electrical men were:

Electrical Hotbeds, Maurice Nixon
Present Status of Research in Rural Electrification G. W. Kable
Electric Hay Hoists E. W. Pilgrim
Fractional Horse Power Motors in Agriculture, R. G. Harvey
Rural Line Extensions, D. E. Blandy
Silo Filing.....H. C. Fuller
Mechanically Refrigerated Apple Storage Warehouse, C. F. Mowrey
Farm Water Supply and Fire Protection.....H. L. Boyer
Electric Ventilation of Dairy Stables.....F. L. Fairbanks
Electric Dairy Sterilizers, A. V. Kerwatch and H. E. Besley
Milk Cooling...P. H. Marquardt
Heat Sterilization....J. D. Brew
The Package Method of Insulating Concrete Milk Tanks .....H. W. Riley

At the banquet Thursday evening Mr. C. C. Whistler, General Manager of the Delco-Light Co., was one of the speakers.

New Brunswick, N. J., was chosen as the meeting place for 1931.

N. Y. State Power Companies Have Rural Business Meeting

The Rural Business Committee of the Empire State Gas and Electric Association met on October 15th at the Hotel Seneca, Rochester. The attendance was unusually large, probably because this meeting was purposely scheduled a day before the annual convention of the North Atlantic Section of the A.S.A.E.

The program included four papers, as follows:

Final Report on Electric Range Operation—Prof. Fairbanks and R. G. Harvey.
Manufactured Milk Cooling Tanks —C. K. Jones, Esco Company.
Discussion of Economics of Motion Pictures for Rural Display —M. L. Sandell, Eastman Kodak Co.
Hay Drying—Geo. Kable, National Rural Elec. Project.

Farmers Who Have Electric Service Are Using It

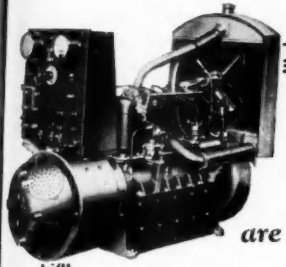
By J. C. Scott

THAT 3,353 electric pumping units were sold in 1929 to farmers in the territory of the Puget Sound Power & Light Company, operating in Western and parts of Central Washington, indicates that farmers not only want electric service but are using it. 260 of these pumping units were large irrigation plants of from 2 horse power to 40 horse power; the remainder being smaller domestic units averaging ½ horse power motors.

Source of Data

These figures were obtained by an inquiry of manufacturers and manufacturers' representatives doing business in this territory. While the compilation represents the greater part of farm electric apparatus connected in 1929, yet it does not include all, because of the impossibility of securing such information from every source of such sales.

The inquiries also brought to our attention the fact that in 1929 there were sold in the same terri-



Do You Know That

UNIVERSAL ELECTRIC PLANTS

are made up to 35 KW?

A complete line that enables you to quote on any electric plant business in your territory. Both AC and DC units are made in capacities of from 1½ to 35KW. Large electric plant business means more money to you than an equal amount of time devoted to small installations. The prospects are easier to sell, because they buy on quality. In the Universal line you have the utmost in quality at reasonable prices. Four, Six and Eight cylinder motors only are used. Power-flow is smooth as highline and with no troubles. Universal Electric Plants are made for heavy-duty service the year round and have proved themselves over a period of years in government, railway, steamship, theatrical and private service.

Write for dealer proposition in your territory. Complete information on request.

18 UNIVERSAL DRIVE

Universal MOTOR CO.

MOTOR COMPANY

Oshkosh, Wisconsin, U. S. A.

Indexes for Volumes I and II

A COMPLETE index of both Volumes I and II of ELECTRICITY ON THE FARM is now available. Copies will be furnished to any one interested upon request.

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A Portable Milker Requiring No Installation

The "Blue Ribbon" is a self-contained milker, requiring no pipe lines or extra equipment of any kind. It operates direct from the light socket of either high line or farm light plant. A beautiful catalog and complete information will be sent on request. Write us today.

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tory 664 electric chicken brooders, averaging in size from 100 to 1,000 chickens, 53 mammoth incubators, capacity from 9,000 to 16,000 eggs, as well as 105 standard incubators of 500-egg capacity.

Other Appliances in Use

Other electric appliances and machines connected on farms during 1929, according to report of sales, are 1,254 electric water warmers for drinking water for chickens, 400 electric milking machines, 600 electric cream separators and much other apparatus which we could not secure so accurate reports on, such as electric hotbeds, motors for general farm use, dairy sterilizers, oat sprouters, chicken scalders, and, in the homes, electric ranges, water heaters, washing machines, ironers, vacuum cleaners, air heaters, toasters, percolators, radios, etc.

H. I. Field Reappointed Sales Manager of Duro Company

Announcement has been made by the Duro Company of Dayton, Ohio, of the reappointment of Henry I. Field as General Sales Manager.

Mr. Field has been connected with the Duro Company for ten years, first as Eastern Sales Manager. In 1927 he was appointed Sales Manager but left this position at the beginning of 1929 to take charge of Duro interests on the Pacific Coast.

Majestic Refrigerator Appears in Two Sizes

The formal entry of the Grigsby-Grunow interests into the electrical refrigeration field becomes a fact with the announcement from Majestic Household Utilities Corporation in Chicago that its factories are now in production at the rate of 1,000 daily, with a rapid step-up to 4,000 machines daily provided for. The prices, which have long been a matter of widespread conjecture, are $175.00 for Model 150, having a nominal capacity of five cubic feet of food storage space, and $195.00 for Model 170 with a seven cubic foot capacity. These prices are f.o.b. factory.

In depth overall, both models of Majestic Refrigerator are the same, 27 13/16 inches; in the larger machine the height is 59 inches and the width 33 11/16 inches, while the smaller model is 54⅝ inches in height and 28½ inches in width.

New Electric Pump Jack

The Titan Electric Co. of Adrian, Mich., has recently developed a new electric pump jack which it is offering to the trade, together with its old line of fractional horse power motors, generators, etc.

The new model pump jack is furnished with either ¼, ⅓, or ½ H.P., back-geared motor, either A.C or D.C. It is driven by spur gears enclosed in a cast iron housing and running in an oil bath.

With the pump jack, the company is also offering a pressure tank and automatic cutout switch, making a complete automatic pressure water system.

Kelvinator Utility Division Changes New York Address

The Utility Division of the Kelvinator Corporation has changed its New York headquarters address to Suite 2645, Equitable Trust Building, No. 120 Broadway, according to an announcement from Campbell Wood, manager of the division.

This separate New York Utility office has been established with a view to giving better service to the Utility Companies located in the eastern section of the United States.

Trade Literature

Master Electric Data Book. The Master Electric Company of Dayton, Ohio, announces a new Data Book—Section 202 on "Single Phase Motors." This 16-page booklet illustrates the special features built into Master motors. Other data of interest to the owner of motor equipment is included.

Coming Meetings

THIRD ANNUAL RURAL SERVICE MEN'S CONFERENCE. Annual conference November 13, 14, 15, 1930, at Ives Hall, Agricultural Engrg. Dept., Ohio State University, Columbus, Ohio.

SHORT COURSE ON RURAL ELECTRICITY. Annual short course conducted by the Missouri College of Agriculture to be held November 20, 21 and 22, 1930, Columbia, Mo.